

# SIEMENS

## Product data sheet

**6ES7431-1KF00-0AB0**


SIMATIC S7-400,  
SM 431 ANALOG INPUT MODULE OPTIC.  
ISOLATED,  
8 AI, 13 BIT RESOLUTION, U//RESIST.

<b>Supply voltage</b>	
Load voltage L+	
Rated value (DC)	not necessary
<b>Input current</b>	
from backplane bus 5 V DC, max.	350 mA
<b>Power losses</b>	
Power loss, typ.	1.8 W
<b>Analog inputs</b>	
Number of analog inputs	8
Number of analog inputs for voltage/current measurement	8
Number of analog inputs for resistance measurement	4
permissible input voltage for voltage input (destruction limit), max.	50 V
permissible input current for current input (destruction limit), max.	50 mA ; 40 mA continuous

Input ranges	
Voltage	Yes
Current	Yes
Resistance	Yes
Input ranges (rated values), voltages	
1 to 5 V	Yes
Input resistance (1 to 5 V)	200 k $\Omega$
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	200 k $\Omega$
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	200 k $\Omega$
Input ranges (rated values), currents	
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	80 $\Omega$
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	80 $\Omega$
Input ranges (rated values), resistors	
0 to 600 ohms	Yes
Input resistance (0 to 600 ohms)	usable up to 500 ohms
Cable length	
Cable length, shielded, max.	200 m
Analog value creation	
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	13 bit
Integration time, parameterizable	Yes
Basic conversion time, ms	23 / 25 ms
Integration time, ms	16.7 / 20 ms
Interference voltage suppression for interference frequency f1 in Hz	60 / 50 Hz
Encoder	
Connection of signal encoders	
for current measurement as 2-wire transducer	Yes ; with external transmitter supply
for current measurement as 4-wire transducer	Yes

for resistance measurement with 2-conductor connection	Yes ; Line resistances are also measured
for resistance measurement with 3-conductor connection	Yes ; Line resistances are also measured
for resistance measurement with 4-conductor connection	Yes
<b>Errors/accuracies</b>	
<b>Operational limit in overall temperature range</b>	
Voltage, relative to input area	+/- 1 % ; +/-1.0% at +/-1 V; +/-0.6% at +/-10 V; +/-0.7% at 1 to 5 V
Current, relative to input area	+/- 1 % ; at +/-20 mA, 4 to 20 mA
Impedance, relative to input area	+/- 1,25 % ; 0 to 500 ohms (4-conductor measurement, in range of 600 ohms)
<b>Basic error limit (operational limit at 25 °C)</b>	
Voltage, relative to input area	+/- 0,7 % ; 0.7% at +/-1 V; 0.4% at +/-10 V; 0.5% at 1 to 5 V
Current, relative to input area	+/- 0,7 % ; at +/-20 mA, 4 to 20 mA
Impedance, relative to input area	+/- 0,8 % ; 0 to 500 ohms (4-conductor measurement, in range of 600 ohms)
<b>Galvanic isolation</b>	
<b>Galvanic isolation analog inputs</b>	
Galvanic isolation analog inputs	Yes ; internal/external
between the channels	No
<b>Permissible potential difference</b>	
between the inputs (UCM)	30 V AC
<b>Isolation</b>	
Isolation checked with	2120 V DC between bus and analog part; 500 V DC between bus and local ground; 2120 V DC between analog part and local ground
<b>Dimensions</b>	
Width	25 mm
Height	290 mm
Depth	210 mm
Required slots	1
<b>Weight</b>	
Weight, approx.	500 g

Status

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